



## Hot-swap protection IC uses Hall-effect current sensing

The new ACS760 from Allegro MicroSystems Europe is a hot-swap protection IC designed for 12 V high-side applications.

The new device combines Allegro's Hall-effect current sensing technology with hot-swap control circuitry, resulting in a highly efficient integrated controller. No external sense resistor is required, resulting in greatly reduced I<sup>2</sup>R

losses in the power path.

The ACS760 incorporates an external high-side FET gate drive, and produces an analogue output voltage (factory trimmed for gain and offset) which is proportional to the current sensed in the device lead-frame. The soft-start/hot-swap function is accessed via the logic 'enable' input pin and an optional user-defined soft-start capacitor .

When the ACS760 is externally enabled and the voltage rail is above the internal undervoltage lockout threshold, the internal charge pump drives the gate of the external FET. When a fault is detected, the gate is disabled while simultaneously alerting the application that a fault has occurred.

Three levels of fault protection are integrated within the ACS760: 240 VA power fault protection with user-programmable delay; user-programmable overcurrent fault threshold with programmable delay; and short-circuit protection, which disables the gate in less than 2  $\mu$ s.

In the event of the external high-side FET failing in a short-circuit condition, the ACS760 detects the failure, immediately disables the gate, and alerts the host system.

The IC is designed for single-supply operation from 10.8 to 13.2 V, and has 1.5 milliohm internal conductor resistance. It is protected against electrostatic discharge at up to 2 kV for all pins.

The ACS760 is supplied in a 24-lead QSOP package (suffix LF) which is lead (Pb) free and RoHS compliant. Operating temperature range is -40°C to +85°C.

### ACS760

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